

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES A. KROM and XIAORONG WANG

Appeal No. 2001-2478
Application No. 09/097,035

ON BRIEF

Before KIMLIN, WALTZ, and TIMM, Administrative Patent Judges.
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's final rejection of claims 1 through 4, 6 through 10, 13, 14 and 21, which are the only claims remaining in this application

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(Brief, page 2; Answer, page 2).¹ We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to a composition comprising the reaction product of a first and second polymer (Brief, page 4). The first polymer includes a polyolefin with at least one pendant or terminal functional group such as a carboxylic acid or acid anhydride and the second polymer is a copolymer of conjugated diene units or a copolymer of conjugated diene units and vinyl aromatic units with at least one nitrogen containing terminal group (*id.*).

Appellants state that all of the claims do not stand or fall together (Brief, page 7). As correctly noted by the examiner, appellants provide reasonably substantive, specific reasons for the separate patentability of three groups of claims as set forth in the Brief, page 7, and the Answer, page 2. Accordingly, to

¹Subsequent to the final Office action dated June 16, 2000, Paper No. 9, appellants submitted two amendments which were entered by the examiner to obviate the final rejections under the first and second paragraphs of 35 U.S.C. § 112 (see the amendment dated Nov. 16, 2000, Paper No. 17, entered as per the Advisory Action dated Nov. 20, 2000, Paper No. 18, and the amendment dated Dec. 7, 2000, Paper No. 19, entered as per the Answer, page 2, ¶4; see also the Brief, pages 2-4). We note that the amendment dated Dec. 7, 2000, Paper No. 19, has not been physically entered into the file record, contrary to the examiner's statement in the Answer, page 2, ¶3. Upon return of this application to the jurisdiction of the examiner, this amendment should be correctly entered.

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the extent these claims were separately argued by appellants, we consider each group separately. See 37 CFR § 1.192(c)(7)(8)(2000). Illustrative independent claim 1 is reproduced below:

1. A composition comprising the reaction product of:

a. a first polymer comprising a poly(olefin), the polymer including at least one pendant or terminal functional group comprised of a carboxylic acid or an anhydride of carboxylic acid or combinations thereof, and

b. a second polymer comprised substantially of a copolymer of conjugated diene units or a copolymer comprised substantially of conjugated diene units and vinyl aromatic units, and further including at least one nitrogen containing terminal group.

The examiner has relied upon the following references as evidence in support of the rejections on appeal:

Coran et al. (Coran)	4,409,365	Oct. 11, 1983
Stayer, Jr. et al. (Stayer)	5,066,729	Nov. 19, 1991
Berta (filed Feb. 13, 1998)	5,962,573	Oct. 05, 1999

Claims 1-4, 6-10, and 13-14 stand rejected under 35 U.S.C. § 102(b) as anticipated by Coran (Answer, page 3).² Claims 1-4, 6-10, 13-14 and 21 stand rejected under 35 U.S.C. § 103(a) as

²The examiner has withdrawn the final rejection of claim 21 under 35 U.S.C. § 102(b) over Coran (Answer, page 2).

unpatentable over Berta in view of Stayer and appellants' admissions (*id.*).³

We *affirm* the examiner's rejection under section 102(b) over Coran essentially for the reasons stated in the Answer and set forth below. We *reverse* the examiner's rejection under section 103(a) over Berta in view of Stayer and appellants' admissions for the reasons stated below. Accordingly, the decision of the examiner is affirmed-in-part.

OPINION

A. *The Rejection over Coran*

The examiner finds that Coran discloses and claims compositions including block copolymers comprising segments derived from amine terminated nitrile rubber and maleic acid modified polypropylene (Answer, page 3, citing Coran, claim 8). The examiner further finds that acrylonitrile rubbers with 80 wt.% of butadiene "would be immediately envisioned as the nitrile rubber because Coran teaches that they include butadiene copolymers with as little as 20 wt.% of acrylonitrile (col. 2, lines 49-52)." *Id.* Accordingly, the examiner concludes that the

³The examiner notes that the "Admissions by Applicant [sic]" are not relevant to the stated rejection since these admissions were only cited against the limitations of claim 14 and, as previously stated, claims 1-4, 6-7 and 13-14 now stand or fall together (Answer, page 3, footnote 1).

composition of Coran anticipates the claimed composition (Answer, pages 3 and 4).

Appellants argue that the present invention requires the second polymer be "substantially conjugated diene units or substantially conjugated diene and vinyl aromatic units," each of which excludes the Coran requirement for greater than 20 wt.% nitrile rubber (Brief, page 8). Appellants further argue that the term "comprising," if used alone, would permit the presence of as little as 20% acrylonitrile units in the polybutadiene polymer but the "substantially" language does not (Reply Brief, page 2).

Therefore, the dispositive issue in this rejection appears to be the claim construction of the contested term "comprising substantially," as recited in part b of claim 1 on appeal. Accordingly, we must properly construe the meaning of this contested limitation to define the scope and meaning of the claimed subject matter before our review of the examiner's anticipation analysis. See *Gechter v. Davidson*, 116 F.3d 1454, 1457, 43 USPQ2d 1030, 1032 (Fed. Cir. 1997).

In claims during prosecution of an application, the claim language must be given its broadest reasonable interpretation as it would have been understood by one of ordinary skill in the art

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when read in light of the specification. See *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997).

Appellants and the examiner agree on the meaning given to the transitional term "comprising" (Answer, page 4; Reply Brief, page 2). The meaning of transitional terms such as "comprising," "consisting essentially of," and "consisting," is well settled in patent jurisprudence. See *Vehicular Techs. v. Titan Wheel Int'l, Inc.*, 212 F.3d 1377, 1383, 54 USPQ2d 1841, 1845 (Fed. Cir. 2000); *In re Baxter*, 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981); *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976); and *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948). If appellants are attempting to exclude some subject matter from the claimed composition, they have had the opportunity during the prosecution of this application to employ "closed" or "intermediate" language such as "consisting" or "consisting essentially of" (see the Brief, page 8; Reply Brief, page 2).

Additionally, appellants are in a weak position to urge a restricted meaning for "comprising substantially" when their specification does not give any definition, limits or guidance to this new terminology (see the specification, page 2, ll. 31-33; page 3, ll. 2-8; and page 5, l. 21-page 6, l. 25). See *In re Herz, supra* ("an applicant who has not clearly limited his claims

is in a weak position to assert a narrow construction.").

Appellants argue that the specification diverges from Coran where 100% butadiene polymers or 100% butadiene/styrene copolymers are "taught and exemplified." Brief, sentence bridging pages 8-9. This argument is not well taken since these "100% butadiene" or "100% butadiene/styrene" polymers are only examples in the specification (pages 11-13) and the claims are not limited to these specific examples (see the Answer, page 5).

For the foregoing reasons, we determine that the transitional term "comprising substantially," as recited in part b of claim 1 on appeal, renders the claimed copolymer open to other ingredients, even in major amounts. See *Vehicular Techs. v. Titan Wheel Int'l, Inc.*, *supra*.

Appellants also argue that Coran does not teach "reacting" the rubbery polymer with the polyolefin resin in contrast to the present invention (Brief, paragraph bridging pages 9-10). This argument is not well taken. Appellants admit in the Reply Brief that Coran does teach a "reaction product" (page 3).

Furthermore, as stated by the examiner, the disclosure of block copolymers and the process conditions for producing these copolymers would have informed one of ordinary skill in this art that a reaction product had been formed (Answer, page 5).

Additionally, we note that appellants' claimed "reaction product" includes mere physical blends of the first and second polymers (see the specification, page 10, ll. 2-17).

Appellants' arguments regarding "major components" versus "minor components" and the function of the second polymer (Brief, page 10) have been adequately addressed by the examiner (Answer, page 5). Therefore we adopt the examiner's comments as our own.

In view of our claim construction above, and the examiner's uncontested factual findings from Coran, we determine that Coran describes all of the subject matter recited in claim 1 on appeal within the meaning of section 102(b). With respect to claims 8-10, appellants argue that the 20-50% acrylonitrile copolymer of Coran cannot anticipate claims 8-10 but fails to set forth any specific reasons other than the arguments for claim 1 on appeal (Brief, page 9). Accordingly, we adopt our claim construction and discussion from above. Therefore, we affirm the examiner's rejection of claims 1-4, 6-10, and 13-14 under 35 U.S.C. § 102(b) over Coran.⁴

*B. The Rejection over Berta in view of Stayer and
Appellants' Admissions*

⁴Appellants' argument concerning claim 21 on appeal (Brief, page 9) is moot since the examiner has withdrawn the rejection of this claim under section 102(b) over Coran (Answer, page 2).

The examiner finds that Berta discloses graft copolymers of polypropylene with polybutadiene grafts, where the polypropylene is first modified with an anhydride monomer such as maleic anhydride, and then reacted with a functionalized polymer reactive with the anhydride groups, exemplified by a hydroxy-terminated polybutadiene (Answer, page 3, citing col. 4, l. 62-col. 5, l. 8, and col. 5, ll. 16-25). The examiner recognizes that Berta fails to teach an amine-terminated polybutadiene can be used in place of the hydroxy-terminated polybutadiene (*id.*).

The examiner reasons that since Berta also teaches amine-terminated polymers such as amine-terminated polyalkylene glycols and olefin/alkylene oxide polymers can be used as functional polymers to react with the maleated polypropylene, it would have been obvious to one of ordinary skill in the art to use an amine-terminated polybutadiene with the expectation of achieving a polypropylene grafted with polybutadiene (*id.*). The examiner cites Stayer to show that amine-terminated polybutadienes are known and "it would have been obvious to use such polybutadienes because they are among the known ones." Answer, sentence bridging pages 3-4. With regard to claim 21 on appeal, the examiner recognizes that the specific imine starting material is not disclosed by Stayer but concludes that use of this imine was

obvious since appellants admit this compound is known and it is within the generic teachings of Stayer (Answer, page 4).

As correctly argued by appellants (Brief, pages 11-12), the examiner has failed to establish any convincing evidence or reasoning to support the proposed modification. Merely because a modification could be made does not establish obviousness. See *In re Grabiak*, 769 F.2d 729, 732, 226 USPQ 870, 872 (Fed. Cir. 1985). The examiner must establish some convincing reasoning or evidence showing the desirability of the proposed modification. See *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999); *In re Grabiak*, *supra*; and *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). Merely because amine-terminated polybutadienes were known, as found in Stayer, does not alone make their use in the composition of Berta obvious, since Stayer is directed to a completely different use (tire tread rubbers) than Berta (injection molded parts such as automobile bumpers). The examiner's reasoning (Answer, pages 3 and 6) is not convincing since the various functionalized polymers that are reactive with the anhydride groups of the grafted polymers of Berta cannot be considered in a vacuum but must be considered in the context of the other components of Berta (i.e., the thermoplastic polyolefin and the oxidized

polyethylene wax; see col. 1, ll. 48-67). The examiner has failed to present any evidence or convincing reasoning as to why one of ordinary skill in this art would have substituted an amine-terminated polybutadiene for the hydroxy-terminated polybutadiene in the composition of Berta. The examiner's reasoning addresses the expectation of success (that amine terminal groups would be expected to react similarly to hydroxy groups with anhydride groups) but fails to consider the motivation or suggestion to make the proposed substitution. See *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).

For the foregoing reasons, we determine that the examiner has not established a *prima facie* case of obviousness in view of the evidence presented. Accordingly, we reverse the examiner's rejection of claims 1-4, 6-10, 13-14 and 21 under 35 U.S.C. § 103(a) over Berta in view of Stayer and appellants' admissions.

C. Summary

The rejection of claims 1-4, 6-10 and 13-14 under 35 U.S.C. § 102(b) over Coran is affirmed.

The rejection of claims 1-4, 6-10, 13-14 and 21 under 35 U.S.C. § 103(a) over Berta in view of Stayer and appellants' admissions is reversed.

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The decision of the examiner is affirmed-in-part.


No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

Edward C. Kimlin)
Administrative Patent Judge)

Thomas A. Waltz
Administrative Patent Judge

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Catherine Timm
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